

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

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| COBBLESTONE WIRELESS, LLC, Plaintiff, v. T-MOBILE USA, INC., Defendant, NOKIA OF AMERICA CORPORATION, ERICSSON INC. Intervenors. | Case No. 2:22-cv-00477-JRG-RSP (Lead Case) JURY TRIAL DEMANDED |
| COBBLESTONE WIRELESS, LLC, Plaintiff, v. AT&T SERVICES INC.; AT&T MOBILITY LLC; AT&T CORP., Defendants, NOKIA OF AMERICA CORPORATION, ERICSSON INC. Intervenors. | Case No. 2:22-cv-00474-JRG-RSP (Member Case) JURY TRIAL DEMANDED |
| COBBLESTONE WIRELESS, LLC, Plaintiff, v. CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS, Defendant, NOKIA OF AMERICA CORPORATION, ERICSSON INC. Intervenors. | Case No. 2:22-cv-00478-JRG-RSP (Member Case) JURY TRIAL DEMANDED |

**DEFENDANTS' AND INTERVENORS' RESPONSIVE
CLAIM CONSTRUCTION BRIEF**

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I. INTRODUCTION

First, Plaintiff is expressly asking the Court to construe the “channel estimation” term in the ’347 Patent despite asserting a “plain and ordinary” construction. For “channel estimation,” the Plaintiff is also asking the Court to construe the term one way for one part of the claim and another way for a second part of the claim. Plaintiff attempts to obfuscate the nature of its request, however, and incorrectly suggests that the Defendants are asking for a construction or are providing its expert with the wrong law.

Second, the ’888 and ’361 Patents have two readily apparent means-plus-function terms. “Adaptation manager” in the ’888 Patent and “quality status module” in the ’361 Patent squarely fall under *Williamson* and its progeny. For the ’888 Patent, the means-plus-function term renders one independent claim indefinite. For the ’361 Patent, the means-plus-function term has a specific algorithmic structure disclosed in the specification.

Third, for the ’888 Patent and the ’361 Patent, two additional terms need construction because they are ill-defined by the patent specification.

Fourth and finally, the term “sub-optimal” in the ’361 patent is a term of degree and the specification provides no objective boundary from which a POSITA could ascertain the scope of the claim.

II. U.S. PATENT NO. 8,891,347 (the “’347 Patent”)

A. Summary of the ’347 Patent

The ’347 Patent relates to predistorting a signal based on channel estimation and path parameter information. The crux of the dispute here is whether the claim should be construed at all.

B. “[T]he channel estimation [that includes the]/[including] path parameter information” (claims 1, 8, 15)

| Cobblestone’s Proposed Construction | Defendants’ Proposed Construction |
|--|--|
| The plain and ordinary meaning of the term; “the channel estimation” referenced in the disputed limitation is <i>the result</i> of the channel estimation performed in the preceding step (“performing a channel estimation”). | No construction necessary; plain and ordinary meaning. |

Defendants contend that “a channel estimation” and “the channel estimation” should receive the same consistent, plain and ordinary meaning. In contrast, Plaintiff advocates for a construction with one meaning in limitation 1[c] and a different meaning in limitation 1[d]. Plaintiff casts its construction as the “plain and ordinary meaning” of the term, but as shown below, that is not what Plaintiff seeks from the Court.

Defendants’ contention that “channel estimation” should receive a consistent, plain and ordinary meaning in both places it appears in the claim is consistent with the fundamental canons of claim construction. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005) (“*Because claim terms are normally used consistently throughout the patent*, the usage of a term in one claim can often illuminate the meaning of the same term in other claims.”)¹; *Summit 6, LLC v. Samsung Elecs. Co.*, 802 F.3d 1283, 1291 (Fed. Cir. 2015) (“The use of the term ‘said’ indicates that this portion of the claim limitation *is a reference back to the previously claimed* ‘[term].’”); *Chamberlain Group, Inc. v. Lear Corp.*, 516 F.3d 1331, 1337 (Fed. Cir. 2008) (“[T]he term ‘code’ presumptively should carry *the same meaning throughout the patent*.”); *Regents of the Univ. of Minn. v. LSI Corp.*, No. 5:18-cv-00821-EJD, 2023 U.S. Dist. LEXIS 150790, at *18 (N.D. Cal. Aug. 25, 2023) (“[The claim term] is introduced with the definite article, ‘the,’ which indicates

¹ All emphasis added unless otherwise noted.

that [the claim term] refers to an antecedent basis *and has the same meaning as that antecedent basis.*”).

Plaintiff’s request to treat the same term differently in different claim elements, on the other hand, is a departure from the well-settled rule. In doing so, Plaintiff is forced to rely on a narrow exception from a 15-year-old case that is inapplicable to the facts of this case. *Microprocessor Enhancement Corp. v. Texas Instruments Inc.*, 520 F.3d 1367, 1375 (Fed. Cir. 2008) (construing identical terms differently to save the validity of the patent).

1. The claim and specification support Defendants’ interpretation of “channel estimation” under the plain and ordinary meaning.

Starting with the claim, the claimed “channel estimation” must be both (i) performed and (ii) sent. This is a plain, straightforward reading. The relevant parts of claim 1 are extracted below:

1[pre]. A method for wireless communication in a system . . . comprising: . . .

1[c] *performing a channel estimation* based on the first signal *to obtain path parameter information* of the first propagation path;

1[d] *sending the channel estimation* that includes *the path parameter information* from the receiver to the transmitter via the first propagation path;

There are two italicized elements in the above limitations: (i) the channel estimation, and (ii) the path parameter information. In limitation 1[c], one element—“a channel estimation”—is performed to obtain the second element—“path parameter information.” In limitation 1[d], both elements—“*the channel estimation* that includes *the path parameter information*”—are sent to the base station. Both elements are present in both limitations. Underscoring this point is the fact that claim limitation 1[d] easily could have been drafted to say “sending the path parameter information” without saying anything about the channel estimation. But claim limitation 1[d] does not say that. Presumptively, the patentee intended to, and did, claim sending both the channel estimation and the path parameter information in limitation 1[d]. *Summit 6*, 802 F.3d at 1291 (“The

use of the term ‘said’ indicates that this portion of the claim limitation *is a reference back to the previously claimed* ‘[term].’”).

Defendants’ expert, Mr. Proctor, explains that one reason a POSITA would send both the channel estimation and the path parameter information to the base station is for accuracy. As Mr. Proctor explains, “a POSITA would understand that one reason to send the algorithm to the base station is so the base station knows the algorithm used for the channel estimation, which might allow the base station to better understand how the path parameter information was calculated.” (Ex. A, Proctor. Decl., ¶ 26). The ’347 Patent also explicitly details how different channel estimations can have higher or lower accuracy, as shown below:

Various channel estimations may be used, including the SAGE algorithm. Other algorithms for estimating the parameters include Maximum likelihood estimation algorithms including the specular-path-based maximum likelihood method. One drawback of the maximum likelihood algorithm, however is that it results in high complexity in many instances. However, when the generic model is correctly chosen, the obtained parameter estimates have higher accuracy than those obtained by using other methods.

’347 Patent, 8:17-25; *see also id.* at 8:36-47 (comparing the “high accuracy” of even more “channel estimation algorithms” to their complexity).

Thus, sending the channel estimation that includes the path parameter information to the base station is precisely what a POSITA would understand the plain and ordinary meaning of the claim to be. As a result, Defendants’ reading of the claim under the plain and ordinary meaning of the term is not—in Plaintiff’s words—“nonsensical,” “misguided,” “legalistic,” “ridiculous,” or “useless.” Defendants’ reading is exactly what the plain language states.

2. Plaintiff relies on an inapplicable exception to well-settled principles of claim construction.

Plaintiff attempts to construe the term “channel estimation” to mean one thing (an algorithm that can be performed) in element 1[c] and a second thing (the result of the algorithm

that was performed) in element 1[d] (*See* Dkt. 108, Pl. Br. at 4 (rejecting the well-settled principle that “an antecedent relationship between two terms” means the terms have “a uniform meaning”)). Plaintiff’s argument is a straightforward request to depart from the plain and ordinary meaning of the term and the standard set forth in *Phillips*. 415 F.3d at 1314 (“*Because claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims.*”).

In an attempt to justify its departure from *Phillips*, Plaintiff cites a 15-year-old case setting forth a narrow exception—*related to invalidity*—that has no applicability here. (Dkt. 108, Pl. Br. at 4 (citing *Microprocessor Enhancement Corp. v. Texas Instruments Inc.*, 520 F.3d 1367, 1375 (Fed. Cir. 2008)). That case—*Microprocessor Enhancement Corp. v. Texas Instruments Inc.*—is not applicable here because Defendants do not argue the claim is invalid as non-sensical or insolubly ambiguous. 520 F.3d at 1375.

In *Microprocessor Enhancement*, the Federal Circuit made a finding concerning the *validity* of the patent, balancing one cannon of claim construction concerning *invalidity under* § 112, ¶2, on the one hand, with the cannon of claim construction dealing with antecedent basis and identical claim elements, on the other. *Id.* The Federal Circuit ruled that if non-uniform treatment of the same limitation in two parts of a patent prevents an “insolubly ambiguous” interpretation, then non-uniform construction of the identical claim limitations is appropriate. *Microprocessor Enhancement*, 520 F.3d at 1366 (“[W]e note that a claim that is amenable to construction is not invalid on the ground of indefiniteness *if the construction renders the claim definite.*”). In this case, however, neither Plaintiff nor Defendants argue that the term is indefinite as insolubly ambiguous to a POSITA under § 112, ¶ 2. Instead, the plain and ordinary meaning of the term is perfectly capable of being understood, as explained above. As a result, there is no reason

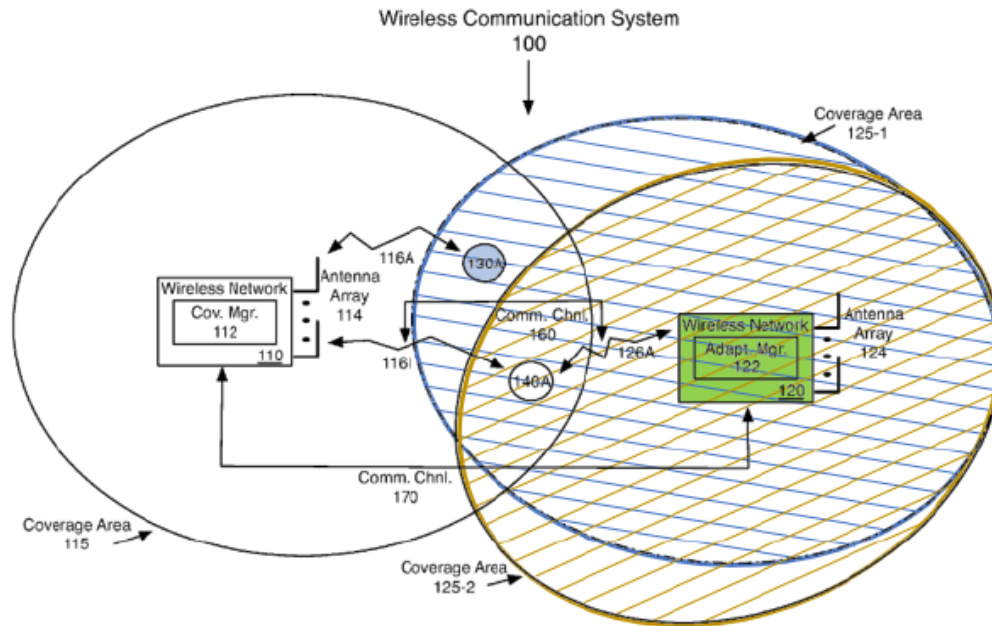
for the Court to step in and construe the term in order to save its validity (especially because no party is arguing the term is invalid). *Id.*

Finally, contrary to Plaintiff’s suggestion, Mr. Proctor’s declarations are consistent. Mr. Proctor used the term “information” to refer to the channel estimation, and there is nothing inconsistent about “information” being an algorithm or path parameter information. Plaintiff’s expert, Dr. Cooklev, on the other hand, uses an inconsistent approach for elements 1[c] and 1[d]. As Plaintiff’s brief explains, “a POSITA would understand that ‘performing a channel estimation’ . . . is done to obtain ‘the channel estimation’ that is sent,” and that “‘send[ing]/receiving the channel estimation’ means sending/receiving *the channel estimation that was obtained by ‘performing a channel estimation.’*” (Dkt. 108, Pl. Br. at 3 (citing Ex. B, Cooklev Decl., ¶¶ 29-30)). This explanation makes little sense. *See Summit 6*, 802 F.3d at 1291 (“The use of the term ‘said’ indicates that this portion of the claim limitation *is a reference back to the previously claimed* ‘[term].’”). Plaintiff’s interpretation, which would have required a construction that the Plaintiff refused to set forth, should be rejected.

III. U.S. PATENT NO. 9,094,888 (the “’888 Patent”)

A. Summary of the ’888 Patent

The ’888 Patent is directed to handover between two different wireless networks. One aspect of the ’888 Patent is the idea that the target network will change its coverage area to accommodate the user equipment (“UE”) that is being handed off. Mr. Proctor illustrates this concept below:

888 Patent, Fig. 1A (annotated); Proctor Decl. at ¶30**FIG. 1A**

In Figure 1A, the target wireless network is operating with coverage area 125-2 (in orange). UE 130A (shown in blue) is not covered by coverage area 125-2 (in orange). '888 Patent, 5:35-38; *see also* Ex. A, Proctor Decl., ¶ 31. To facilitate the handover, the '888 Patent describes that the target network must “adapt” its coverage area to 125-1 (in blue cross stripes) to cover the UE 130A (Ex. A, Proctor. Decl., ¶ 31). To adapt its coverage area, the '888 Patent describes adapting one or more beams of an antenna array to match coverage area 125-1. *Id.*

B. “[A]daption manager” (claim 20)

| Cobblestone’s Proposed Construction | Defendants’ Proposed Construction |
|---|--|
| <p>No construction necessary; plain and ordinary meaning; not subject to means-plus-function treatment under 35 U.S.C. § 112(6).</p> <p>If counterfactually § 112(6) were to apply, not indefinite.</p> | <p>Indefinite under § 112, ¶ 6.</p> |

| | |
|--|--|
| <p>Functions: receive a handoff request from the second wireless network, the handoff request based, at least in part, on a determination by the second wireless network that the wireless device is capable of being covered by the first wireless network; cause a beam from among the one or more adaptable beams to be adapted in order to enable the wireless device to be covered by the first wireless network; transmit a confirmation to the second wireless network to indicate acceptance of the handoff request, wherein the wireless device is handed off from the second wireless network to the first wireless network.</p> <p>Structure: adaption manager 122 (FIGs. 1A-1C, 3, 5-7, 4:4-6, 5:18-20, 6:18-7:23, 8:65-10:13, 12:23-13:28, 13:62-15:45, and/or corresponding figures and equivalents.</p> | |
|--|--|

1. “[A]daption manager” is a means-plus-function term governed by 35 USC. § 112 ¶ 6.

“[A]daption manager” is a generic, functional term intending to recite a “means” for performing three specific functions as claimed. However, the term fails to connote a sufficiently definite structure for doing so (Ex. A, Proctor Decl., ¶¶ 38-39, 42-43).

Claim 20 requires the “adaptation manager” to include logic “configured to”: (1) “*receive* a handoff request from the second wireless network” (2) “*cause* a beam . . . to be adapted,” and (3) “*transmit* a confirmation to the second wireless network to indicate acceptance of the handoff request.” ’888 Patent, cl. 20. This is purely functional—not structural—language, where the word “manager” is a block-box replacement for the word “means.” This understanding is supported by the intrinsic and extrinsic evidence and squarely on point with the Federal Circuit’s more recent decision in *Egenera, Inc. v. Cisco Sys.*, 972 F.3d 1367, 1374 (Fed. Cir. 2020).

a) The intrinsic evidence supports means-plus-function treatment.

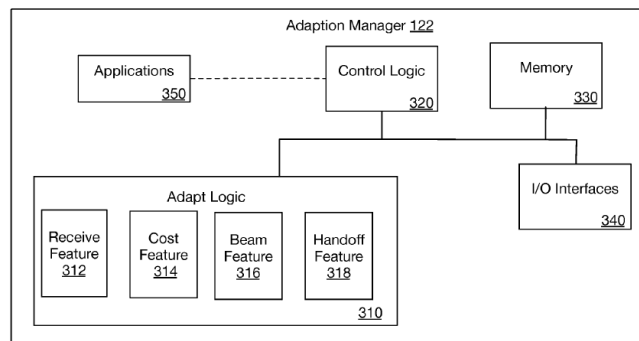
A POSITA would not have understood “adaption manager” to have a known meaning in the art outside of an abstraction or a “means” for performing its three claimed functions (Ex. A, Proctor Decl., ¶ 40). Plaintiff’s expert does not appear to dispute this fact (Ex. B, Cooklev Decl.,

¶ 39 (opining that “the ‘adaption manager’ is a definite structure in the wireless communications system of claim 20.”)).

A plain reading of the claim confirms that “adaption manager” and/or “manager” is a nonce word that operates as a substitute for “means.” The “adaption” prefix is descriptive and adds no structural significance (*see* Ex. A, Proctor Decl., ¶ 40). For example, substituting “adaption manager” with “an adaption means” retains the meaning of both the term and the claim (*id.*). “[A]daption manager” is simply a verbal construct for performing the three claimed “adaption” functions listed above.

The specification also confirms “adaption manager” should receive means-plus-function treatment. The only illustration in the ’888 Patent describing an “adaptation manager” is provided in Figure 3, annotated below:

888 Patent, Fig. 3 (annotated).



The “adaption manager 122” is an undefined, functional box that can include other smaller, undefined functional boxes working together (or not) to perform essential functions required by claim 20 (*see* Ex. A, Proctor Decl., ¶¶ 41-42). These boxes are the only illustration purporting to structurally define “adaption manager” (*see* Ex. A, Proctor Decl., ¶¶ 47-48). Otherwise, the specification merely discloses that “adapt logic 310 and control logic 320,” as highlighted above, “may separately or collectively represent a wide variety of logic device(s) to implement the

features of adaption manager 122.” ’888 Patent, 9:20-23. This is not sufficiently definite structure that would enable a POSITA to understand what an “adaption manager” is, how it operates, or how to design one. *Egenera, Inc. v. Cisco Sys.*, 972 F.3d 1367, 1374 (Fed. Cir. 2020) (affirming application of 112(f) where the recited “logic” merely denoted “software, firmware, circuitry, or some combination thereof,” which the district court held to be “so broad and formless as to be a generic black box for performing the recited computer-implemented functions.”); *see also Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1351 (Fed. Cir. 2015); *Advanced Ground Info. Sys. v. Life360, Inc.*, 830 F.3d 1341, 1347-48 (Fed. Cir. 2016) (“The term ‘symbol generator’ invokes the application of § 112, ¶ 6 because it fails to describe a sufficient structure and otherwise recites abstract elements ‘for’ causing actions, or elements ‘that can’ perform functions.” (internal citations omitted)).

A POSITA would not find any of the disclosures in the specification to impart structure onto “adaption manager” (*see* Ex. A, Proctor Decl., ¶¶ 45-49). Plaintiff argues the “inputs and outputs” of the adaption manager are defined, but this is simply incorrect. The only “input” and “output” shown in Figure 3 is a generic box labeled “I/O Interface” (Input/Output Interface) with no description of what input or output flows through that interface. ’888 Patent at Fig. 3. The specification is even less helpful. The specification does not describe what the input or output of the adaption manager is and discloses that the I/O is connected to other black box structures like a “coverage manager,” “elements” co-located or not co-located with the “coverage manager,” or the nebulous “adapt logic” described below. ’888 Patent at 8:29-44; *id.* at 9:6-10.

Thus, Plaintiff’s recurring argument that “adaption manager . . . is structural” is misplaced (*see, e.g.*, Dkt. 108, Pl. Br at 11, 13). The dispute is not “whether a claim term recites *any* structure but whether it recites *sufficient* structure. . . .” *Egenera*, 972 F.3d at 1374 (emphasis in original).

Here, it does not. The specification, and Plaintiff's expert, do no more than suggest that the adaption manager *should* accomplish its functions, and can implement other black boxes to do so.

b) *Egenera* squarely rejected Plaintiff's arguments concerning the "logic" term and its reliance on *Apple* is misplaced.

Further, Plaintiff's arguments regarding the importance of the "logic configured to" language of the "adaption manager" term are incorrect. Plaintiff's reasoning was expressly rejected by the Federal Circuit in *Egenera, Inc. v. Cisco Sys.*, 972 F.3d 1367, 1374 (Fed. Cir. 2020). In *Egenera*, the Federal Circuit concluded that "logic to modify" was a non-structural term because "Egenera does not explain how its 'logic'—even assuming it connotes some possible structure in the general sense of software, firmware, or circuitry—amounts to 'sufficient structure for performing [the modification] function.'" *Id.* The Federal Circuit rejected the argument "that the claim language defines the 'inputs, outputs, connections, and operation' of the logic component" and faulted the Plaintiff for citing *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286 (Fed. Cir. 2014) because it failed to consider the *Williamson* precedent. *Id.* Finally, the Federal Circuit concluded that "'logic' is no more than a 'black box recitation of structure' that is simply a generic substitute for 'means.'" *Id.*

Here, Plaintiff sets forth the same failed arguments from *Egenera* on a similar set of facts. Plaintiff's central argument is that § 112 ¶ 6 does not apply because "[t]he claim language itself provides structure because it describes the inputs, outputs, and structural connections of the adaption manager" (Dkt. 108, Pl. Br. at 9-10 (relying on *Apple*, 757 F.3d at 1296-304)). This is the same argument rejected by the Federal Circuit in *Egenera* because, as described above, no actual inputs or outputs are defined for the adaption manager. Likewise, as noted in *Egenera*, the "strong" presumption standard used in *Apple* was rejected in *Williamson*. *Egenera*, 972 F.3d at 1374 (rejecting plaintiff's citation to *Apple* and the structural significance of "'inputs, outputs,

connections, and operation’ of the logic component” and noting that “none of [plaintiff’s] precedent considers *Williamson*.”); *see also Media Rights Techs., Inc. v. Capital One Fin. Corp.*, 800 F.3d 1366, 1373 (Fed. Cir. 2015) (cautioning against relying on pre-*Williamson* precedent). Finally, *Egenera* rejected the argument that “logic” denotes *sufficient* structure even if it is considered “software, firmware, circuitry, or some combination thereof,” calling that definition “so broad and formless as to be a generic black box for performing the recited computer-implemented functions.” *Id.* (quoting district court).

The Court should follow the Federal Circuit’s decision in *Egenera* and reach the same result.

c) Even if *Apple* was appropriate precedent, Plaintiff ignores a key requirement.

Plaintiff’s analysis of the *Apple* case focuses on the “inputs and/or outputs” and “structural connections,” but in making its argument Plaintiff ignores the well-established “how” requirement from all of the cited cases. The *Apple* court reasoned that “[t]he limitation’s operation is more than just its function; it is *how* the function is achieved in the context of the invention.” 757 F.3d at 1299. Importantly, the Court in *Apple* found that the specification describes “*how* [the claim term’s] output may be achieved.” *Id.*

Here, the patent specification does nothing to describe how the functional output of “adapting a beam” of the claim is related to the functional input of “receiving a handoff request.” The specification discloses that at least one of the “inputs” and one of “outputs” are directly connected by the “adaption manager” function. The specification states that the “[a]daption manager 122 may also include logic and/or features *to adapt one or more beams of antenna array 124 to adjust wireless network 120’s coverage area (e.g., back to coverage area 125-1) based at least on the handoff request.*” ’888 Patent at 6:51-59. However, the ’888 Patent describes nothing

about *how* the adaption manager takes the input of the handoff request and achieves the output of adapting one or beams. The adaption manager is a black box.

Therefore, all of Plaintiff's cases are distinguishable because they require that the patent explain *how* a claimed function is performed, a requirement that Plaintiff cannot show in this case. *See Estech Sys. IP, LLC v. Mitel Networks, Inc.*, No. 2:21-cv-00473-JRG-RSP, 2023 U.S. Dist. LEXIS 53447, at *42 (E.D. Tex. Mar. 28, 2023) ("By reciting the objectives of the [disputed term], *and how [that disputed term] operates* within the context of the claimed invention, the claim language connotes sufficiently definite structure to one of skill in the art."); *Free Stream Media Corp. v. Alphonso Inc.*, 996 F.3d 1355, 1363-64 (Fed. Cir. 2021) (in affirming the district court's decision, and the Federal Circuit reiterated that "the asserted claims do not at all describe *how [the intended] result is achieved*" explaining that the claims "provide for how [it] is achieved only by stating that the mechanism used to achieve [the intended] communication is by piercing or otherwise overcoming [something]"); *Uniloc USA, Inc. v. Autodesk, Inc.*, No. 2:15-cv-1187-JRG-RSP, 2016 U.S. Dist. LEXIS 87921, at *57 (E.D. Tex. July 7, 2016) ("the claim itself connotes the structural nature of the 'add-on computer software code' *by describing how* the add-on computer software code operates within the claimed invention"); *Intelligent Water Sols., LLC v. Kohler Co.*, No. 2:16-CV-689, 2017 U.S. Dist. LEXIS 86164, at *39 (E.D. Tex. June 5, 2017) (holding that "[t]he claims themselves connote sufficiently definite structure *by describing how* the 'remote system monitoring/control device' operates within the claimed invention to achieve its objectives," in part because "[c]laim 1 ... recites that it 'operates to receive signals from said system control means and/or said one or more system sensor(s)'"").

2. “[A]daption manager” is indefinite because the specification lacks adequate disclosure of the corresponding structure.

Turning to step two of the analysis, the term “adaption manager” is indefinite because the specification points to a generic computer with no corresponding algorithm to support it. *Williamson*, 792 F.3d at 1352 (explaining that in these cases the specification must expressly “disclose an algorithm for performing the claimed function” which “may be expressed as a mathematical formula, in prose, or as a flow chart, or in any other manner that provides sufficient structure.”). Because no algorithm is disclosed, Plaintiff takes the non-sensical position that the “structure” of the “adaptation manager” is “adaption manager 122.” This approach is not supported by the case law and should be rejected.

a) The specification discloses a generic processor or microprocessor as the structure for the adaption manager.

The specification discloses that an “example logic device” that may be used to “implement the features of adaption manager” can include “one or more of a computer, a microprocessor, a microcontroller, a field programmable gate array (FPGA), an application specific integrated circuit (ASIC), a sequestered thread or a core of a multi-core/multi-threaded microprocessor or a combination thereof.” ’888 Patent, 9:23-28. This disclosure amounts to nothing more than a computer or microprocessor programmed to carry out an algorithm.

“For means-plus-function claims in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, we have held that the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm.” *Rain Computing, Inc. v. Samsung Elecs. Am., Inc.*, 989 F.3d 1002, 1007 (Fed. Cir. 2021). The law requires that the specification expressly “disclose an algorithm for performing the claimed function.” *Williamson*, 792 F.3d at 1352. “The algorithm

may be expressed as a mathematical formula, in prose, or as a flow chart, or in any other manner that provides sufficient structure.” *Id.*; *see also* Ex. A, Proctor Decl., ¶ 45.

Because no algorithm is disclosed, the claim is indefinite. *Rain Computing*, 989 F.3d at 1008 (“Without an algorithm to achieve the ‘control access’ function, we hold the term ‘user identification module’ lacks sufficient structure and renders the claims indefinite.”); *see also Advanced Ground*, 830 F.3d at 1349.

b) Plaintiff’s recitation that “adaption manager 122” is the structure of the “adaption manager” should be rejected.

Plaintiff ignores the express disclosure that the adaption manager is a processor or microprocessor and instead argues that the structure for the “adaption manager” is the black box shown in Figure 3 labeled as the “adaption manager 122 (and equivalents of it)” (Dkt. 108, Pl. Br. at 14). This is improper. To reach *Williamson* step two, the “adaption manager” has already been found *to not* connote sufficient structure, so it makes little sense why Plaintiff is pointing back to the black box as the structure. Moreover, Plaintiff’s further recitation of the functional features inside of adaption manager 122 provide no additional structure to that figure (Dkt. 108, Pl. Br. at 15 (referring to the “cost feature,” “receive feature,” and “beam feature”)).

Next, Plaintiff’s assertion that the Defendants are incorrect to suggest the processor or microprocessor would need to be programed should be rejected as well. In essence, Plaintiff argues that the “logic” of the claims could be “implemented on off-the-shelf ‘logic devices,’ rather than on a special purpose computer” (Dkt. 108, Pl. Br. at 16). In other words, Plaintiff suggests that off-the-shelf components are pre-programed to implement beamforming and handover requests. This unsupported assertion is plainly wrong, and Dr. Cooklev’s conjecture on this point should be rejected (*see* Ex. A, Proctor Decl., ¶ 45).

Finally, Plaintiff's assertion that Mr. Proctor is wrong to limit the adaption manager to the processor disclosed in the specification is irrelevant and incorrect (*see* Dkt. 108, Pl. Br. at 16). The processor still needs to be programed with an algorithm, regardless of whether that processor also includes "memory", "I/O interfaces," etc. (*see* Ex. A, Proctor Decl., ¶¶ 48-49). Plaintiff's argument here is a red herring to distract from the fact that there is no algorithm in the specification.

Thus, Plaintiff's arguments should be rejected.

C. "[P]redetermined network load" (claim 12)

| Cobblestone's Proposed Construction | Defendants' Proposed Construction |
|--|--|
| No construction necessary; plain and ordinary meaning; not indefinite under 35 U.S.C. § 112. | Indefinite. |

The specification fails to inform a POSITA of the scope of "predetermined network load," and as Mr. Proctor explains "in the context of the claim, a POSITA would not understand how adapting the beam based on a predetermined network load due to the handoff could be determined before the handoff" (Ex. A, Proctor Decl., ¶ 56).

The specification provides minimal disclosures describing a "predetermined network load." For example, the specifications only explains that:

- The system could include features "configured to predetermine criteria such as what network load would be placed on [target] wireless network 120 if wireless device 130A was handed off from wireless network 110." '888 Patent, 6:63-66;
- A "[m]emory 330 may also be arranged to temporarily maintain information associated with determining whether to accept a handoff request (e.g., predetermined network loads)." '888 Patent, 9:50-53; and
- "a predetermined network load placed on wireless network 120 if wireless device 130A is handed off." '888 Patent, 12:56-57.

These disclosures do not inform a POSITA about the scope of the term because the “predetermined network load” is used to, in part, “adapt one of more beams,” but none of the descriptions relate to beam adaptation (Ex. A, Proctor Decl., ¶¶ 56-58). Thus, a POSITA would not understand the scope of “predetermined network load” *in the context of beam adaption* as is required by the claim.

Plaintiff’s mischaracterization of Mr. Proctor’s testimony is unavailing. His testimony clarifies that the scope of this term is indefinite because it has no known or common meaning in the art, and the specification fails to give it any meaning. Particularly where the “adapting one or more beams” is critical to the claim. Mr. Proctor’s IPR testimony does not contradict the indefinite nature of the term, since the prior art cited in the IPR sufficiently disclosed beamforming. Accordingly, this claim term is indefinite.

IV. U.S. PATENT NO. 10,368,361 (the “’361 Patent”)

A. Summary of the ’361 Patent

The purpose of the ’361 Patent is to eliminate unused or underutilized frequency spectrum resources. ’361 Patent, 3:53-54. The ’361 Patent identifies that the problem giving rise to these unused resources is that the “static or semi-static allocation of uplink and downlink channels can result in unused or underutilized frequency spectrum resources when uplink and downlink traffic loads change between the node and the mobile stations.” ’361 Patent, 3:46-49. To achieve this goal, the ’361 Patent discloses a method that (i) determines the quality of the frequency spectrum resource, (ii) allocates the high quality resources to an uplink or downlink pool to be assigned to uplink and downlink resources, and (iii) allocates “sub-optimal” resources to a shared resource pool that can be dynamically allocated to either uplink or downlink based on the changing directional loads in the network (Ex. A, Proctor Decl., ¶¶ 63-71).

B. “[Q]uality status module configured to determine a respective status of a first frequency spectrum resource and a second frequency spectrum resource” (claim 10)

| Cobblestone’s Proposed Construction | Defendants’ Proposed Construction |
|---|---|
| <p>No construction necessary; plain and ordinary meaning; not subject to means-plus-function treatment under 35 U.S.C. § 112(f).</p> <p>If counterfactually § 112(f) were to apply:</p> <p>Function: determine a respective quality status of a first frequency spectrum resource and a second frequency spectrum resource, wherein each of the first frequency spectrum resource and the second frequency spectrum resource are associated with an air interface that is available for use by the wireless base station for an uplink channel or a downlink channel</p> <p>Structure: Processor with software running an algorithm to execute measurement of “channel quality indicator (CQI), received interference power (RIP), and/or any other suitable quality metric or key performance indicator, such as RSSI, acknowledgment/negative acknowledgement (ACK/NACK) frequency, dropping rate, block error rate, bit error rate, signal-to-interference-plus-noise ratio (SINR), and equivalents.</p> | <p>Means-plus-function term governed by § 112(f).</p> <p>Function: determine a respective quality status of a first frequency spectrum resource and a second frequency spectrum resource, wherein each of the first frequency spectrum resource and the second frequency spectrum resource are associated with an air interface that is available for use by the wireless base station for an uplink channel or a downlink channel</p> <p>Structure: Processor with software running an algorithm to execute measurement of “channel quality indicator (CQI), received interference power (RIP), and/or any other suitable quality metric or key performance indicator, such as RSSI, acknowledgment/negative acknowledgement (ACK/NACK) frequency, dropping rate, block error rate, bit error rate, signal-to-interference-plus noise ratio (SINR), etc.” 4:29-34.</p> |

The only dispute is whether § 112(f) should apply to the term “quality status module.” If the term is a means-plus-function term, the parties largely agree² on the construction. No party argues that the term is indefinite.

² The parties’ constructions for function are identical, while the constructions for the structure differ only slightly. Defendants proposed the precise language from the ’361 Patent, while Plaintiff’s construction uses “etc.” instead of “equivalents.”

1. “[Q]uality status module” is subject to § 112, ¶ 6.

The Federal Circuit has stated that “[m]odule” is a well-known nonce word that can operate as a substitute for “means” in the context of § 112, para. 6.” *Williamson*, 792 F.3d at 1350. In the context of the ’361 Patent, “quality status *module*” does not provide any indication of structure. Rather, like “adaption manager,” the term is a black box recitation of a structure for performing the claimed function of “determin[ing] a respective quality status of a first frequency spectrum resource and a second frequency spectrum resource.” ’361 Patent, cl. 10. The prefix “quality status” imparts no additional structure to the term and is simply descriptive of the module’s function. *Rain Computing*, 989 F.3d at 1007 (finding that “module” was a nonce word and the prefix “user identification” did not impart structure because it merely describes the function of the “module,” and the claim language failed to provide any structure for performing the claimed functions).

A POSITA would not understand “quality status module” to have any structural significance in the art³ (Ex. A, Proctor Decl., ¶ 78). Plaintiff’s expert does not appear to dispute this fact (*see* Ex. B, Cooklev Decl., ¶ 60 (opining that the term has a “sufficiently definite meaning as the name of a structure in the wireless communications system of *claim 10 of the ’361 patent*”)). Moreover, the ’361 Patent does not provide disclosure purporting to give the module a sufficiently definite structure; the specification only discloses that the “quality status” determination can be performed by “quality status module” or “any other suitably configured software, firmware, or logic circuit entity, etc.” ’361 Patent, 10:55-61. Configuring software, without more, does not transform an otherwise nonce term into one with a sufficiently definite structure. *Williamson*, 792

³ Plaintiff faults Defendants for not construing “scheduler module” as a means-plus-function term, but the base station’s scheduler is well known in the art.

F.3d at 1351 (“But the fact that one of skill in the art could program a computer to perform the recited functions cannot create structure where none otherwise is disclosed.”).

Plaintiff assertion that § 112 ¶ 6 does not apply is unavailing and at odds with well-established law.⁴ In particular, Plaintiff’s conclusory allegations about high level disclosures are not enough to impart sufficient structure to an otherwise nonce word. Plaintiff argues that the claim term itself provides the structure of the “quality status module” because (i) the “quality status module” is coupled to a “processor”; (ii) a “POSITA would further understand that such coupling is necessary . . . to make certain of the claimed determinations”; and (iii) the “module has outputs” and “inputs” (Dkt. 108, Pl. Br. at 20-21). As explained above in the section on “adaption manager,” these arguments standing alone, without being tied to actual structural elements from the claims, are not enough to turn a nonce term into *sufficient* structure.

As also explained above, these conclusory allegations do not establish *or show how* the “module” operates or makes its required determination. The claim would need to describe *how* the “module” interacts with other components in a way that might inform the structural character of the limitation-in-question. *Williamson*, 792 F.3d at 1349; *id.* at 1351 (“While portions of the claim do describe certain inputs and outputs at a very high level . . . *the claim does not describe how* the ‘distributed learning control module’ interacts with other components in the distributed learning control server *in a way that might inform the structural character of the limitation-in-question* or otherwise impart structure to the ‘distributed learning control module’ as recited in the claim.”). Here, a POSITA would not recognize any means for performing the claimed determination function within the context of the patent.

⁴ Defendants incorporate the caselaw in support of Section III.B (“adaption manager”).

None of the cases cited by Plaintiff are on point, and as noted above, all require that the claim describe *how* the nonce word interacts with the other components. *See Estech Sys*, 2023 U.S. Dist. LEXIS 53447, at *42 (“By reciting the objectives of the [disputed term], *and how [that disputed term] operates* within the context of the claimed invention, the claim language connotes sufficiently definite structure to one of skill in the art.”); *see also Free Stream Media Corp.*, 2017 U.S. Dist. LEXIS 46921, *aff’d*, 996 F.3d 1355 (same, and the Federal Circuit reiterated provided a focused analysis on the absence of description for “*how [the intended] result is achieved*” explaining that the claims “provide for how [it] is achieved only by stating that the mechanism used to achieve [the intended] communication is by piercing or otherwise overcoming [something]”); *Uniloc*, 2016 U.S. Dist. LEXIS 87921, at *57 (same); *Intelligent Water Solutions*, 2017 U.S. Dist. LEXIS 86164, at *39 (holding that “[t]he claims themselves connote sufficiently definite structure *by describing how* the ‘remote system monitoring/control device’ operates within the claimed invention to achieve its objectives,” in part because “[c]laim 1 ... recites that it ‘operates to receive signals from said system control means and/or said one or more system sensor(s)’”).

As a result, this term should be construed in accordance with the parties agreed upon construction so as to clarify the structure to the jury.

2. Structure and algorithm.

The parties agree the structure and algorithm of the term is as follows: Processor with software running an algorithm to execute measurement of “channel quality indicator (CQI), received interference power (RIP), and/or any other suitable quality metric or key performance indicator, such as RSSI, acknowledgment/negative acknowledgement (ACK/NACK) frequency, dropping rate, block error rate, bit error rate, signal-to-interference-plus-noise ratio (SINR), and equivalents.

C. “[S]hared resource pool” (claims 10, 11, 17)

| Cobblestone’s Proposed Construction | Defendants’ Proposed Construction |
|--|--|
| Plain and ordinary meaning, which is a pool containing one or more frequency spectrum resources that can be scheduled for uplink or downlink channels. | A pool containing one or more sub-optimal frequency spectrum resources that can be scheduled for uplink and downlink channels. |

1. The meaning and purpose of the ’361 Patent is clear from the specification.

The specification of the ’361 Patent repeatedly describes three pools: a downlink resource pool, an uplink resource pool, or a shared resource pool. ’361 Patent, Abs.; *see also* Fig. 1; Fig. 4; 4:14-16; 4:55-56; 10:35-37. The claims require that “sub-optimal” resources (to the extent that term can be understood) are assigned to the shared resource pool. ’361 Patent, cl. 10; *see also* Ex. A, Proctor Decl., ¶¶ 86-87. Further, the specification states that if a resource is not “sub-optimal” it will be assigned to an uplink or downlink resource pool: “[t]hus, processor module 112 may assign high-quality resources to downlink resource pool 116 and/or to uplink resource pool 117, and may assign lower-quality frequency spectrum resources to shared resource pool 118.” ’361 Patent, 9:5-8; 9:8-14; 11:47-12:7.

In all instances, the specification discloses that the resources being assigned to the “shared resource pool” are those that have the capability of being scheduled to *both* uplink *and* downlink channels. The entire purpose of the ’361 Patent is to solve the problem of unused resources that result from the “*static or semi-static allocation of uplink and downlink channels* can result in unused or underutilized frequency spectrum resources when uplink and downlink traffic loads change between the node and the mobile stations.” ’361 Patent, 3:46-49. Therefore, the ’361 Patent utilizes the shared resource pool to schedule resources that can be allocated for both uplink and downlink channels depending on the network’s needs (Ex. A, Proctor Decl., ¶ 68). For example, the patent explains that “the subcarriers that are assigned to shared resource pool 118 may be

ranked in terms suitability for uplink and for downlink channels.” ’361 Patent 9:21-25; *see also* ’361 Patent 10:23-28 (“Thus, not only are available frequency spectrum resources efficiently utilized by node 110, these frequency spectrum resources may be scheduled for either uplink or downlink channel *based on the current suitability of each resource*, which can enhance user experience and system-level performance.”). Thus, the resources assigned to the “shared resource pool” are those that are not currently suitable for either the uplink or downlink channel, but can be assigned to *either* (as the claim suggests) (Ex. A, Proctor Decl., ¶¶ 88-89).

2. Plaintiff attempts to exploit an ambiguous claim 10.

The problem in adopting a “plain and ordinary” construction for this term lies in the ambiguous claim language, which Plaintiff appears to want to exploit. In claim 10 for example, the patent states the frequency spectrum resource “is available for use by the wireless base station for an uplink channel *or a* downlink channel.” ’361 Patent, cl. 10. In the context of the patent specification, a POSITA reading this would understand that this means the frequency resource is available for use by both an uplink channel and a downlink channel depending on the needs of the network (Ex. A, Proctor Decl., ¶¶ 88-89). Plaintiff appears to be exploiting the subtle difference in the claim language, however. In its contentions, Plaintiff states that “[b]y default, *all available frequency resources* are in a ‘Shared Resource Pool.’” (Ex. C, Excerpt from Pl. Infr. Cont. at 11). Plaintiff’s contentions dilute the meaning of the shared resource pool by placing *all* resources in the pool “by default.” This means there are no resources in the uplink resource pool and no resources in the downlink resource pool. This runs counter to the entire meaning and point of the ’361 Patent.

3. “[S]hared resource pool” requires construction to avoid misleading arguments before the jury.

To avoid an erroneous and misleading argument to the jury that *all resources* are in the “shared resource pool” *by default*, the claim should be construed. Defendants’ construction—“a pool containing one or more sub-optimal frequency spectrum resources that can be scheduled for uplink and downlink channels”—captures the specification’s description. *Phillips*, 415 F.3d at 1313 (“Importantly, the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.”).

Defendants’ construction does not import limitations into the claims, but instead simply clarifies the claim’s meaning by including “and” in between “uplink” and “downlink.” ’361 Patent, 9:58-63 (“[T]he updated directional allocation of frequency spectrum resources may be based on the remaining resource requests (*for both uplink and downlink channels*) that are not yet satisfied after scheduling frequency spectrum resources assigned to downlink resource pool 116 *and to* uplink resource pool 117.”); *see also* Ex. A, Proctor Decl., ¶ 90.

4. Plaintiff’s arguments are incorrect.

Plaintiff’s arguments against this clarifying construction are mistaken. First, the fact that a resource might change from “sub-optimal” to not “sub-optimal,” as Plaintiff suggests, is irrelevant to the fact that resources assigned to the “shared resource pool” after they are somehow *determined* to be “sub-optimal” in the first part of the claim. The time at which a resource is no longer “sub-optimal”—to the extent that can occur—has no bearing on original assignment to the shared resource pool.

Second, Defendants’ construction does not require that “resources must continue to be sub-optimal the entire time they are in the shared resource pool” (although a POSTIA would understand

this to be the case). Moreover, Plaintiff fails to identify in the claim where the “quality status” is updated, so this argument lacks merit.

Thus, “shared resource pool” should be construed to clarify any ambiguity the claim imposes that is contradicted by its meaning within the context of the specification.

D. “[S]ub-optimal resource” (claims 10, 17)

| Cobblestone’s Proposed Construction | Defendants’ Proposed Construction |
|--|--|
| No construction necessary; plain and ordinary meaning; not indefinite under 35 U.S.C. § 112. | Indefinite. |

Plaintiff does not appear to dispute that “sub-optimal” is a term of degree. But because “sub-optimal” is a term of degree, the patent should provide objective criteria for defining the term’s boundary. *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1371 (Fed. Cir. 2014) (“The claims, when read in light of the specification and the prosecution history, must provide objective boundaries for those of skill in the art.”); *Intellectual Ventures I LLC v. T-Mobile USA, Inc.*, 902 F.3d 1372, 1381 (Fed. Cir. 2018) (“While a claim employing a term of degree may be definite where it provides enough certainty to one of skill in the art when read in the context of the invention, a term of degree that is purely subjective and depends on the unpredictable vagaries of any one person’s opinion is indefinite.” (quotations and alterations omitted)).

1. The ’361 Patent (and the Plaintiff) provide no objective criteria for determining the scope of “sub-optimal.”

The ’361 Patent sets forth no objective criteria for determining whether a resource is—or is not—sub-optimal. The disclosure of “sub-optimal resource” in the specification describes how “suitable” a resource is as compared to one *or more* other resources. The specification states the resource is assigned to “shared resource pool 118 when it is determined [to be] *less suitable* for an uplink channel than one *or more* other frequency spectrum resources [] and also is *less suitable* for a downlink channel than one *or more* frequency spectrum resource that are available to node 110.”

'361 Patent, 11:10-17; *see also id.* at 11:28-33 (“[B]ecause the first frequency spectrum resource is determined by quality status module 113 to currently be a sub-optimal resource for uplink and/or downlink channels, the first frequency spectrum resource may be assigned by processor module 112 to shared resource pool 118.”); *see also* Ex. A, Proctor Decl., ¶ 94.

As Mr. Proctor explains, determining whether something is “more suitable” or “less suitable” by comparing all the relative resources based on a “quality status” is entirely subjective to the POSITA involved (Ex. A, Proctor Decl., ¶ 95). Based on the nebulous description in the specification, there is no guarantee that two POSITAs with the exact same information about a resource would agree that it is “suitable.” Therefore, there is no objective way to determine infringement. *Intellectual Ventures*, 902 F.3d at 1381 (finding the term “allocating resources . . . so as to optimize end user application IP [quality of service]” indefinite because “optimiz[ing]” quality of service was a “purely subjective” “term of degree” that “depends on the unpredictable vagaries of any one person’s opinion” (internal quotations omitted)).

Instead of setting forth clear, objective criteria from which a POSITA could ascertain the scope of the claim—either by defining the criteria through claim construction or otherwise—Plaintiff marches through four pages of argument and explanation that only further highlights the subjective nature of the claim term. For example, the Plaintiff states:

- “the patent *does not require any special degree* of difference between the ‘sub-optimal’ resource and the ‘other’ resources” (Dkt. 108, Pl. Br. at 28)
- “the claim *does not require* evaluation of *all* other frequency spectrum resources, or *any specific number* of resources” (Dkt. 108, Pl. Br. at 28)
- “a *lower* RIP is *better* than a *lower* RIP” (Dkt. 108, Pl. Br. at 27)

- “a POSITA would understand that a *higher* CQI is *better* than a *lower* CQI,” (Dkt. 108, Pl. Br. at 27)
- “‘sub-optimal’ and ‘less suitable’ do not mean worst or least suitable,” (Dkt. 108, Pl. Br. at 28)
- “If resource A is ‘*worse*’ than B but ‘*better*’ than C, it is still sub-optimal relative to other resources, because it is *worse* than at least one of B and C” (Dkt. 108, Pl. Br. at 28)

“Lower,” “higher,” “better,” “worse,” “relative,” “suitable,” and “special degree” are not objective boundaries. Nothing above, or in Plaintiff’s briefing, provides an objective boundary that allows a POSITA to understand when a resource has crossed the line into “sub-optimal” resource territory. Instead, each POSITA is left to personally determine whether a resource is “sub-optimal” (so that it belongs in a shared resource pool) or not sub-optimal (so that it belongs in a uplink or downlink resource pool). ’361 Patent, cl. 10. This type of term of degree is indefinite as a matter of law. *Intellectual Ventures*, 902 F.3d 1372.

Next, Plaintiff attempts to describe “sub-optimal” using a series of ill-defined “context” clues from the claim itself (Dkt. 108, Pl. Br. at 26). None of this “context” helps a POSITA determine what is or is not a “sub-optimal resource.” For example, Plaintiff states, “it must be based on at least one specific input: the quality status determined by the quality status module” (Dkt. 108, Pl. Br. at 26). Determining the “input” using “the quality status” does not provide an objective boundary. Moreover, the “specific” input called out by the Plaintiff is not actually specific at all. The ’361 Patent states “quality status module 113 may determine the quality status of each frequency spectrum resources associated with air interface 130 based on channel quality indicator (CQI), received interference power (RIP), *and/or any other suitable quality metric or key*

performance indicator.” ’361 Patent, 4:26-34. As Mr. Proctor explains, this so-called “specific” input based off “*any other suitable quality metric*” only highlights the vague and undefined scope of “sub-optimal” (Ex. A, Proctor Decl., ¶ 97). Given there is not even an agreed upon quality metric to define what could or could not be “sub-optimal,” there is certainly no objective boundary associated with that “quality metric.”

Next, Plaintiff states that “it must relate to both uplink and downlink channels” (Dkt. 108, Pl. Br. at 26-27). This similarly has no relationship to the boundary between “sub-optimal” and not. Plaintiff then asserts that “it must be relative to other frequency spectrum resources” (*id.* at 27). But making a “relative” comparison does not provide an objective boundary. Next, Plaintiff states “the subsequent assignment of the first spectrum resource to a shared resource pool must be in response to the determination” (*id.*). The assignment of a “sub-optimal resource” has no bearing on the “sub-optimal” determination. Assignment occurs after the determination. As a result, the claim context provides *no* constraints on the meaning and scope of “sub-optimal resource.” *Halliburton Energy Servs., Inc. v. M-I LLC*, 514 F.3d 1244, 1251 (Fed. Cir. 2008) (“Even if a claim term’s definition can be reduced to words, the claim is still indefinite if a person of ordinary skill in the art cannot translate the definition into meaningfully precise claim scope.”).

Finally, Plaintiff’s contentions highlight the lack of definition surrounding the “sub-optimal resources” that would be assigned to the “shared resource pool.” Plaintiff’s contentions state, “[b]y default, *all available frequency resources* are in a shared resource pool.” (Ex. C, Excerpt from Pl. Infr. Cont. at 13). It cannot be true that *all available frequency resources* are sub-optimal and assigned to the shared resource pool if that term or this claim is supposed to have any meaning.

2. Plaintiff's cases using the phrase "optimal" are not on point.

Plaintiff cites a number of cases dealing with the word "optimal" that are distinguishable. In each of the cited cases, the specification and claims provided plaintiffs and the court with *an objective* boundary that delineated the term (Dkt. 108, Pl. Br. at 30).

That is not the case here. Instead, *Intellectual Ventures* is instructive. 902 F.3d 1372 (Fed. Cir. 2018). There, the Federal Circuit held a claim that required "allocating resources . . . so as to optimize end user application IP [quality of service]" to be indefinite. *Id.* at 1381. This was because the phrase "optimiz[ing]" quality of service was a "purely subjective" "term of degree" that "depend[ed] on the unpredictable vagaries of any one person's opinion." *Id.* (quoting *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342 (Fed. Cir. 2005)). Also instructive is the Federal Circuit's decision in *Berkheimer v. HP Inc.*, where the court held the phrase "minimal redundancy" to be indefinite because the specification failed to "determine an objective boundary of 'minimal.'" 881 F.3d 1360, 1364 (Fed. Cir. 2018). As in *Intellectual Ventures* and *Berkheimer*, the specification here provides no objective standard for the claimed "sub-optimal resource." Plaintiff has not proposed a definition to solve that problem. Two POSITAs could reach a different conclusion about whether a resource is sub-optimal. Therefore, the claim term is indefinite as a matter of law.

V. CONCLUSION

The Court should adopt Defendants' claim construction positions.

Respectfully submitted April 2, 2024.

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CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the above and foregoing document has been served on April 2, 2024, on the counsel of record via electronic mail.

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